



RECEIVED

DEC 12 2003

TECHNOLOGY CENTER R3700

PATENT  
Docket No. JCLA6244-C1-R  
page 1

AF 3743  
#21  
Dm

UNITED STATE PATENT AND TRADEMARK OFFICE

In re application :  
Application No. : 09/611,562  
Filed : July 07,2000  
For : HEAT EXCHANGER

Examiner : DUONG, THO V.  
Art Unit : 3743

Certificate Of Mailing

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

December 4, 2003

(Date)

Jiawei Huang, Reg. No. 43,330

*Reply*  
**TRANSMITTAL OF APPEAL BRIEF**

*this has been  
considerated  
TD*

COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

Sir:

Transmitted herewith is a Reply Brief in ( 7 ) pages, including ( 2 ) pages of Appendix A.

Stamped return postcard is enclosed.

No fee believed to be due, however, the Commissioner is authorized to charge any additional fees, including any required time extension fee, to Deposit Account No. 50-0710 (Order No. JCLA6244-C1-R). A duplicate copy of this sheet is enclosed.

**Correspondence Address:**  
J.C. PATENTS  
4 Venture, Suite 250  
Irvine, California 92618  
Tel: (949) 660-0761  
Fax: (949) 660-0809

*Jiawei Huang*  
Jiawei Huang  
Registration No. 43,330



RECEIVED

DEC 12 2003

TECHNOLOGY CENTER R3700

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

---

Ex Parte KOBAYASHI et al.

---

Application for Patent

Filed: 07/07/2000

Serial No.: 09/611,562

Group Art Unit 3743

Examiner DUONG, T. V.

For:

HEAT EXCHANGER

---

REPLY BRIEF

---

## TABLE OF CONTENTS

1. INTRODUCTION.....	
2. STATUS OF AMENDMENTS .....	
3. THE EXAMINER'S ANSWER HAS RAISED NEW POINTS OF ARGUMENT ...	
4. CONCLUSION.....	
5. APPENDIX – CLAIM AMENDMENTS .....	

### 1. INTRODUCTION

This Reply Brief is in response to the Examiner's Answer mailed Oct. 21, 2003. Under 37 C.F.R. §1.193(b), it is believed that the Examiner's Answer has raised new points of argument, and that this Reply Brief is therefore proper.

### 2. STATUS OF AMENDMENTS

The Examiner states in item (8) that that brackets are missing in "/" and "coil" or "coils", which have been crossed out. Appellants have amended claims 1-11 under 37 CFR 1.116 by adding brackets as required by the Examiner. The scope should be clear now after amendments.

### 3. THE EXAMINER'S ANSWER HAS RAISED NEW POINTS OF ARGUMENT

The Examiner's Answer raises new arguments in item (11) regarding prior art reference Kang et al..

#### 3.1. The Examiner sustains the rejections.

In re Kang et al., the Examiner rejected claimed invention by the reasons basically based on the drawing Fig. 10a of Kang et al.. The Examiner also refers to

the Cases of **Mraz**, 173 USPQ and **Vas-Cath Inc. V. Mahurkar** 19 USPQ 2d. Specifically, the Examiner refers to Mraz to state that the drawing can anticipate the claim, wherein the measuring the ratio is taken. The Examiner also states that Park is referred only to supply the 7 mm diameter. Then, the Examiner made a conclusion that the rejections are sustained.

### 3.2. Appellant's Arguments

In re **Mraz**, it can be known that **"Drawings and pictures can anticipate claims if they clearly show the structure which is claimed. In re Mraz, 455 F.2d 1069, 173 USPQ 25 (CCPA 1972). However, the picture must show all the claimed structural features and how they are put together."**

The present invention has provided a general rule to design the width slit and the spacing between the slits.

The present invention requires the conditions of:

- (a)  $W_s \geq [1 - 0.1(6 - N)] \times W_f / (2N + 1)$  (with respect to claim 6);
- (b) the width of each slit is within a range of about 0.17 to 0.29 times the diameter of one heat transfer tube (with respect to claim 8);
- (c) the spacing between slits in each array is within a range of about 0.18 to 0.5 times the diameter of one heat transfer tube (with respect to claim 10).

When measuring the ratio or sizes of slit and spacing in Fig. 10a of Kang et al., it is found that at least one slit with the width and at least one of the spacing (the slit at the 5<sup>th</sup> row and the spacing between the 2<sup>nd</sup> slit row and the 3<sup>rd</sup> slit row, counted from the arrow direction A) do not satisfy the forgoing conditions. Kang et al. only discloses the condition with N=10. The detailed calculation and measurement are following.

(A) With respect to claim 6, Appellants measure the drawing on Fig. 10a, and have the  $W_f = 33$  mm. In this scale, the slit i.e. at the 5<sup>th</sup> row (counted from arrow A direction) has a width of about 2 mm (within line width error). According to  $W_f = 33$  mm and N=10, the minimum  $W_s$  is 2.2 mm. Therefore, according to Fig. 10a, Kang et al. does not satisfy the condition (a) with respect to claim 6. Also and, Kang et al. failed to teach the parameter N other than 10. Kang et al. also failed to disclose that all slit widths, satisfying the required condition. In conclusions, Kang et al. does not

anticipate claimed invention as recited in claim 6 for the set of slits.

(B) With respect to claim 8, appellants also measure the diameter of the tube by 13 mm (with the same scale of  $W_f=33$  mm). In this scale, the minimum  $W_s$  for the factor  $0.17 \times 13 \text{ mm} = 2.21 \text{ mm}$ . This is greater the 5<sup>th</sup> slit with 2 mm. Kang et al. by Fig. 10a do not anticipate the claimed invention recited in claim 8 for the set of slits.

(C) With respect to claim 10, Fig. 10a is also measured to have i.e. at least the spacing between 2<sup>nd</sup> slit row and the 3<sup>rd</sup> slit row by 2 mm. Again, the minimum spacing as recited in claim 10, applied on Kang et al. is  $0.18 \times 13 \text{ mm} = 2.34 \text{ mm}$ . This is greater than 2 mm. Kang et al. by Fig. 10a do not anticipate the claimed invention recited in claim 10 for the set of slit spacing.

In other words, Kang et al. in Fig. 10a does not disclose all slit widths or all spacing satisfying the features recited in claimed invention.

In re Park, the tube with diameter of 7 mm is disclosed. However, as stated by the Office Action, Park is only referred to the diameter of 7 mm. Then, with the same foregoing reasons applied to the independent claims 6, 8, and 10, dependent claims 7, 9, and 11 are also distinguishable over Kang et al., in view of Park.

(D) Briefly, Kang et al. never disclose how to determine the slit width and the spacing between slits. Kang et al. also do not specifically state that the drawing is scaled from the actual size. Also and, Kang et al. is not a design patent to reflect the actual scale. Fig. 10a of Kang et al. **does not show** that all of the slit widths or all of the slit spacings are satisfying the condition as recited in claimed invention. Kang et al. only disclose the case with  $N=10$  to design the slit array structure. It is believed that the slit width and the slit spacing are not considered by the Kang et al.. The drawing Fig. 10a is not scaled, therefore it does not reflect the actual size. Also and the drawing Fig. 10a does not completely satisfy the condition as recited in claims 6, 8, and 10. Therefore, the drawing Fig. 10a of Kang does not anticipate the claimed invention.

Park does not supply the missing features in Kang with respect to independent claims 6, 8, and 10, then with at least the same reasons, dependent claims 7, 9, and 11 are distinguishable over Kang et al. in view of Park.

It is also respectfully reminded that the hindsight with potentially improperly construing the disclosure of Kang et al. should be avoided.

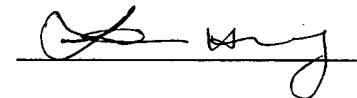
4. CONCLUSION

The Appellant has stated that the drawing in Fig. 10a of the prior reference is not scaled from the actual size. Even if the size of drawing is used, the drawing also failed to anticipate the claimed invention at least recited in claims 6, 8 and 10. Therefore, the Board is requested to reverse the rejection of claims 6-11 under 35 U.S.C. 102 and 35 U.S.C. 103.

Date: 12/4/2003

4 Venture, Suite 250  
Irvine, CA 92618  
Tel.: (949) 660-0761  
Fax: (949)-660-0809

Respectfully submitted,  
J.C. PATENTS



Jiawei Huang  
Registration No. 43,330

## APPENDIX A – AMENDMENTS FOR CLAIMS ON APPEAL

### Claims 1-5 (Canceled)

6. (Currently Amended) A structure of heat transfer fin mounted within a heat exchanger that includes a plurality of heat transfer ~~[[e0i1s]]~~ tubes penetrating through the heat transfer fin, wherein air is supplied orthogonally to said heat transfer ~~[[e0i1s]]~~ tubes, and the heat transfer fin is partitioned in at least one fin unit in which arrays of slits are arranged in a row, the heat transfer fin being characterized in that the arrangement of the arrays of slits satisfies the following formula:

$$W_s \geq [1 - 0.1(6 - N)] \times W_f / (2N + 1),$$

wherein  $W_s$  = width of one slit,  $W_f$  = width of a fin unit, and  $N$  = the number of slits arrays ~~[[f/]]~~ or the number of heat transfer fin units.

7. (Currently Amended) The heat exchanger of claim 6, wherein each heat transfer ~~[[e0i1]]~~ tube has a diameter of about 7mm.

8. (Currently Amended) A structure of heat transfer fin mounted within a heat exchanger that includes a plurality of heat transfer ~~[[e0i1s]]~~ tubes penetrating through the heat transfer fin, wherein air is supplied orthogonally to said heat transfer ~~[[e0i1s]]~~ tubes, and the heat transfer fin is partitioned in at least one fin unit in which arrays of slits are arranged in a row, the heat transfer fin being characterized in that the width of each slit is within a range of about 0.17 to 0.29 times the diameter of one heat transfer ~~[[e0i1]]~~ tube.

9. (Currently Amended) The heat exchanger of claim 8, wherein a diameter of one heat transfer ~~[[e0i1]]~~ tube is about 7mm.

10. (Currently Amended) A structure of heat transfer fin mounted within a heat exchanger that includes a plurality of heat transfer ~~[[e0i1s]]~~ tubes penetrating through the heat transfer fin, wherein air is supplied orthogonally to said heat transfer ~~[[e0i1s]]~~ tubes, and the heat transfer fin is partitioned in at least one fin unit in which arrays of slits are arranged in a row, the heat transfer fin being characterized in that the spacing between slits in each array is within a range of about 0.18 to 0.5 times the diameter of one heat transfer ~~[[e0i1]]~~ tube.

11. (Currently Amended) The heat exchanger of claim 10, wherein a diameter of one heat transfer ~~[[e0i1]]~~ tube is about 7mm.